

Amendment and Response

Applicant: Mark Hirst et al.

Serial No.: 10/685,322

Filed: October 14, 2003

Docket No.: 200309706-1 (H301.338.101)

Title: IMAGING DEVICE COOLING SYSTEM

REMARKS

The following remarks are made in response to the Office Action mailed March 30, 2006. Claims 1, 2, 6, 7, 9-12, 16-19, 21-24, 28, 29, 31-34, 38, 39 and 41-47 were rejected. Claims 3-5, 8, 13-15, 20, 25-27, 30, 35-37 and 40 were objected to. With this Response, claims 2 and 16 have been cancelled, and claims 1, 3, 7, 12, 13, 17, 19, 20, 22, 25, 35, and 44-47 have been amended. Claims 1, 3-15, and 17-47 remain pending in the application and are presented for reconsideration and allowance.

Claim Rejections under 35 U.S.C. § 103

The Examiner rejected claims 1, 2, 6, 7, 9-12, 16-19, 21-24, 28, 29, 31-34, 38, 39 and 41-47 under 35 U.S.C. § 103(a) as being unpatentable over JP 01-120342 ("Kawakami") in view of Suski U.S. Patent No. 5,419,780 ("Suski").

Previously presented independent claim 1 recites a cooling system in a print imaging device having an element that generates heat, the cooling system including a thermoelectric generator thermally coupled to the element to convert heat from the element to electrical energy, and a cooling device powered by the electrical energy to thereby cool the print imaging device. Original claim 2 depends from independent claim 1 and includes the further limitation that the element that generates the heat comprises a print element.

The Examiner rejected original claim 2 under 35 U.S.C. § 103(a) as being unpatentable over Kawakami" in view of Suski. The Examiner admits that Kawakami does not teach a cooling device powered by the electrical energy to thereby cool the print imaging device, but concludes that it would have been obvious to do so in light of Suski.

Kawakami describes a printing press having a drying apparatus 14 with burners 5 which dries printed paper 2. Exhaust gas generated by the drying apparatus 14 is sent to a deodorizing apparatus 3 where it is reheated by a burner 5 and subjected to a decompositional reaction by a catalyst to generate heated exhaust gas 8. A temperature difference between the heated exhaust gas 8 from deodorizing apparatus 3 and an open air flow 12 passing through an open air duct is converted to electrical energy by a thermoelectric converter 6. The Examiner equates the drying apparatus of Kawakami with the print element of original claim 2 and concludes that Kawakami discloses converting heat from a print element to electrical energy as recited by original claim 2 of the present invention. In fact, however, Kawakami

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discloses converting heat generating by a deodorizing unit 3, which is separate from drying apparatus 14, to electrical energy. As such, Kawakami does not teach or suggest a **thermoelectric generator coupled to a print element that generates heat to convert the heat from the print element to electrical energy as recited by original claim 2.**

In view of the above, previously presented independent claim 1 has been amended to include the further limitations of original claim 2 so as to recite **a cooling system in a print imaging device having a print element that generates heat and including a thermoelectric generator thermally coupled to the print element to convert heat from the print element to electrical energy and a cooling device power by the electrical energy.** As such, Applicant respectfully submits that neither Kawakami nor Suski, either alone or in combination, teach or suggest the invention as recited by amended independent claim 1.

Independent claim 12 recites **a print imaging system including a print element that generates heat and a cooling system including a thermoelectric generator thermally coupled to the print element to convert heat from the print element to electrical energy.** Independent claim 44 recites **a method of cooling a print imaging device including converting heat generated by a print element of the imaging device to electrical energy.** Independent claim 47 recites **a cooling system in an imaging device having a print element that generates heat, the cooling system including means for converting heat generated by the print element to electrical energy.** As described above with regard to amended independent claim 1, Kawakami does not teach or suggest converting heat generated by a print element to electrical energy, but rather heat generated by a deodorizing unit. As such, Kawakami does not teach or suggest **converting heat generated by a print element to electrical energy as recited by independent claims 12, 44, and 47.**

Independent claim 24 recites **a laser printer including a fuser that generates heat and a cooling system including a thermoelectric generator thermally coupled to the fuser to convert heat from the fuser to electrical energy.** Independent claim 34 recites **a fuser system including a fuser assembly that generates heat and a cooling system including a thermoelectric generator thermally coupled to the fuser to convert heat from the fuser to electrical energy.** As described above with regard to amended independent claim 1, Kawakami does not teach or suggest converting heat generated by a

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fuser to electrical energy, but rather heat generated by a deodorizing unit. As such, Kawakami does not teach or suggest **converting heat generated by a fuser to electrical energy** as recited by independent claims 12, 44, and 47.

In view of the above, Applicant respectfully submits that neither Kawakami nor Suski, either alone or in combination, teach or suggest the invention as recited by independent claims 1, 12, 24, 34, 44, and 47. Furthermore, dependent claims 6-11, 17-23, 28-33, 38-43, and 45-46 depend directly or indirectly upon corresponding independent claims 1, 12, 24, 34, and 44. Accordingly, dependent claims 6-11, 17-23, 28-33, 38-43, and 45-46 are also allowable over the cited references.

Additionally, with this response, claims 2 and 16 have been cancelled, claims 7, 17, 19, 20, 22, 45, and 46 have been amended so as to maintain proper antecedent basis, and claim 44 has been amended to correct a minor informality.

Allowable Subject Matter

The Examiner objected to claims 3-5, 8, 13-15, 20, 25-27, 30, 35-37, and 40 for being dependent upon a rejected base claim, but as being allowable if rewritten in independent form including all limitations of the base claim and any intervening claims.

With this Response, claims 3, 13, 25, and 35 have been rewritten in independent form including all limitations of the base claim and any intervening claims. As such, Applicant believes claims 3, 13, 25, and 35 to be in allowable form. Furthermore, dependent claims 4-5, 14-15, 26-27, and 36-37 depend directly or indirectly upon corresponding independent claims 3, 13, 25, and 35. Accordingly, dependent claims 4-5, 14-15, 26-27, and 36-37 are also allowable over the cited references.

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CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 1, 3-15, and 17-47 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1, 3-15, and 17-47 is respectfully requested.

Applicants hereby authorize the Commissioner for Patents to charge Deposit Account No. 08-2025 the amount of \$800.00 to cover fees as set forth under 37 C.F.R. 1.16(h)(i).

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to either Gregg W. Wisdom at Telephone No. (360) 212-8052, Facsimile No. (360) 212-3060 or Steven E. Dicke at Telephone No. (612) 573-2002, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,

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CERTIFICATE UNDER 37 C.F.R. 1.8:

The undersigned hereby certifies that this paper or papers, as described herein, are being transmitted via facsimile to Facsimile No. (571) 273-8300 on this 29 day of June, 2006.

By: Steven E. Dicke

Name: Steven E. Dicke